Magnetic Arc Control Systems

The Cyclomatic Series Magnetic Arc Control has been redesigned to provide the stability and precision a microprocessor control offers.

Two new microprocessor controllers are available: Model 8020 is compatible with four older style probes; Model 8040 dual axis controller uses the 4613A probe.

Magnetic arc control provides even heat distribution, prevents undercutting, eliminates excessive porosity, ensures sufficient penetration, and evens out the weld puddle. Combined with a magnetic probe, a magnetic field is created around the arc to precisely position, oscillate, and stabilize it.

The Magnetic Arc System bolts onto your present automatic or semi-automatic welding torch and goes immediately to work solving some of welding's toughest problems. By adding stability and control over arc oscillation and positioning, the Magnetic Arc Control ensures a quality weld, even when welding on exotic metals.

Specifications

Control Unit	Model 8020	Model 8040
Sweep	Adjusts speed of oscillation, 1-50 oscillation per second	N/A
Frequency	N/A	Adjusts speed of oscillation, 1-50 oscillation per second
Amplitude	Magnetic Field Strength Adjustment, proportional to arc length (approx. ratio 1:1)	Independent Arc Placement Adjustment for each axis, proportional to arc length (approx. ratio 1:1)
Position	Arc Placement Adjustment, proportional to arc length (approx. ration 1:1)	Independent Arc Placement Adjustment for each axis, proportional to arc length (approx. ration 1:1)
Dwell Ratio	1:1 to 100:1 on eight side of weld seam	NA
Dwell Control	Independently variable left and right	NA
Final Taper	Reduces Magnetic Field Strength (Amplitude) from 0-15 seconds to match downslope	Reduces Magnetic Field Strength (Amplitude) from 0-15 seconds to match downslope
Input Power	115/220 VAC, 50/60 Hz	115/220 VAC, 50/60 Hz
Cooling	Air/convection	Air/convection
Dimensions	9.75 x 4 x 11.75 (248 x 102 x 300 mm)	9.75 x 4 x 11.75 (248 x 102 x 300 mm)
Weight	12 lb (5.4 kg)	12 lb (5.4 kg)

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CYCLOMATIC SERIES MAGNETIC ARC CONTROL

4604 Magnetic Probe
This single tip, water-cooled probe works well in tight clearances and adapts to conventional torches.

4608C Magnetic Probe
This dual tip probe slips over a conventional TIG torch and can be used either for cross-seam weaving or in-line weaving.

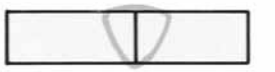
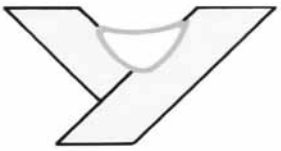
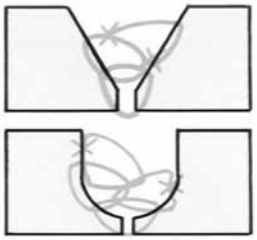
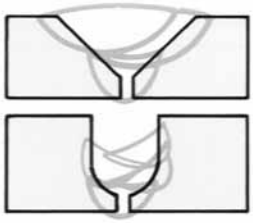
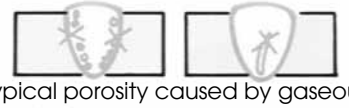
4613A Magnetic Probe
With four independently controlled magnetic coils, the 4613A probe has the highest capacity for multiple arc and weld bead profiles. This probe, coupled with the 8040 Controller, provides the ability to shift the entire arc pattern relative to the weld seam with position controls.

4615 Magnetic Probe
This twin-tip, side mount probe is capable of delivering the full 600 gauss magnetic field to the welding arc.

Magnetic Probe	**4604**	**4608C**	**4613A**	**4615**
Max Field Strength	300 gauss max	300 gauss max	300 gauss max	600 gauss max
Cable Length	8 ft (2.5 m)	8 ft (2.5 m)	10 ft (3 m)	10 ft (3 m)
Weight	5 lb (2.3 kg)	4 lb (1.8 kg)	5 lb (2.3 kg)	7 lb (3.2 kg)
Controller Compatibility	8020	8020	8040	8020
Standard Tips	1030-0096 1 required	1033-0203 2 required	1030-0657 4 required	1030-0240 left 1030-0231 right 1 each required
Probe extensions, tip extensions, and custom tips are available for some probes; contact the factory for details.				

CYCLOMATIC SERIES MAGNETIC ARC CONTROL

Cyclomatic's Magnetic Arc Control System solves the five main problem areas of automatic arc welding. Any one of these problems can result in an unsatisfactory weld. This is especially so when exotic alloys are fabricated and when the end product is subjected to elevated temperatures, high pressures, unusual stress, or vibration patterns.

PROBLEM	SOLUTION	
 Arc blow or wander causing misplaced bead and unsatisfactory penetration.		Cyclomatic's ability to control and direct the arc and control heat distribution between the parts being joined significantly improves uniformity of penetration and provides consistent, uniform welds.
 Large gap causing excessive drop-through and root-side undercut.	 Uniform penetration achieved with Cyclomatic's control system.	
 Sharp crevices in butt weld.		Cyclomatic solves these problems by sweeping the arc back and forth across the desired weld line, thereby directing the required amount of heat to the weld edges, which widens and flattens the bead.
 Flat fillet with sharp crevices on both members.	 Minimize undercutting with Cyclomatic's control system.	
 Lack of fusion in V and U grooves.	 Uniform sidewall fusion achieved with Cyclomatic's control system.	Inadequate sidewall fusion in multipass groove joints is prevented by the capability of the Cyclomatic to oscillate the arc in the groove, directing the thermal energy to the desired position.
 Typical porosity caused by gaseous products generated in melted base metal.	 Sound welds achieved with Cyclomatic's control system.	The stirring action of the oscillator will materially aid in the elimination of porosity and its resultant defects, regardless of cause.
 Insufficient heat on thick member prevents proper penetration and fusion to thin member.	 Uniform penetration on thick and thin members with no undercutting — with Cyclomatic's control system.	Cyclomatic's ability to control the proportion of time the arc dwells on either side of the desired weld line makes it possible to place the welding energy exactly where it is needed to achieve uniform penetration and eliminate undercutting when members of different cross sections are joined.

CYCLOMATIC SERIES MAGNETIC ARC CONTROL

Ordering Information

Part Number	Description
System Packages	
8020-4604	Model 8020 Control with 4604 Probe
8020-4608C	Model 8020 Control with 4608C Probe
8020-4615	Model 8020 Control with 4615 Probe
8040-4613A	Model 8040 Control with 4613A Probe
System packages consist of: • Microprocessor control unit with 7.5′ (2.3 m) power cable • Probe assembly with 8′ (2.4 m) or 10′ (3.3 m) cable • 12′ (3.6 m) remote interface cable • Operators manual	
Extension cables are available - contact Jetline for further details.	
Individual Components	
043511	Model 4608C Probe with 8′ (2.5 m) cable
043512	Model 4604 Probe with 8′ (2.5 m) cable
043515	Model 4615 Probe with 10′ (3.3 m) cable
043571	Model 4613A Probe, 2 Axis, with 10′ (3.3 m) cable (for use with the 8040 control)
Probe assemblies include standard probe tip(s), attachment links, torch clamp, and water hoses with fittings.	
8020	Single Axis Control Unit
8040	Dual Axis Control Unit

See Jetline price list for complete ordering information

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